



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS

14 FEB 2017

MEMORANDUM FOR SGVT

ATTN: MAJ DANIEL M. MOSELEY

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled Pneumoperitoneum During Endovascular Harvest presented at/published to Society of Cardiovascular Anesthesiologists Annual Meeting, Orlando, FL, 21-26 April 2017 in accordance with MDWI 41-108, has been approved and assigned local file #17074.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are 59 MDW staff member, we can forward your request for funds to the designated wing POC.
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Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

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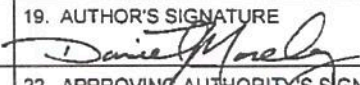

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Pneumoperitoneum During Endovascular Harvest

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Introduction

We describe a case of intraoperative pneumoperitoneum during endovascular saphenous vein harvest for coronary artery bypass graft. This case demonstrates the importance of vigilant intraoperative monitoring and consideration of novel but serious pathophysiology.

History and Management

A 60-yr-old white male with unstable coronary artery disease was referred for coronary artery bypass graft. Past medical history was significant for neuroendocrine tumors of the GI tract, hypertension, obesity, diabetes, hyperlipidemia, and esophageal stricture status post multiple dilations. Past surgical history included inguinal hernia repair, knee surgery, and hip surgery.

The anesthesia plan included general endotracheal anesthesia with standard ASA monitors, pre-induction a-line, central line, TEE placement with video laryngoscopic guidance, and cerebral oximetry.

The induction of anesthesia and sternotomy were uneventful. The harvest of LIMA and saphenous vein were initiated, and within a few minutes it was noticed that ETCO₂ was higher than expected for ventilator settings (CMV TV=690 RR=12=Insp time=1.7 PEEP=5 FiO₂ =100%). The patient gradually became more hypotensive.

The views expressed herein are those of the authors and do not reflect the official policy or position of San Antonio Military Medical Center, the U.S. Air Force Medical Department, the U.S. Army Surgeon General, the Department of the Army, Department of Defense or the U.S. Government.

Causes for increased ETCO₂ were investigated including blood gas sampling. Upon inspection the patient's abdomen was severely distended, though the surgical team reported no significant subcutaneous crepitus on palpation. The surgeon decided to open the abdominal cavity by extending the sternotomy incision and performing a small peritoneal opening. Upon the entrance of the peritoneum a brisk escape of CO₂ occurred resulting in hemodynamic improvement.



Discussion

Possible pathways for CO₂ infiltration of the peritoneum include the inguinal canal, subcutaneous infiltration, and novel or unknown trauma between the two compartments. Suspicion of new trauma was low based on the patient's history, exam, and the location of the harvest site. Subcutaneous infiltration also seems unlikely given the lack of crepitus and improbability of a second defect communicating with the abdomen.

The inguinal canal seems a likely candidate, both due to its natural anatomic communications and the patient's prior inguinal hernia surgery.

Besides exogenous CO₂, other considerations for hypercapnea in this setting include hypoventilation, rebreathing, increased CO₂ production, and increased dead space ventilation.

Conclusion

Pneumoperitoneum is a rare but potentially serious complication of endovascular harvest. The anesthesiologist but be vigilant to quickly identify and correct associated hypercapnea or hemodynamic changes. Intraoperative diagnosis via monitoring devices, physical exam, and blood gas should quickly narrow the differential diagnosis and permit swift correction of physiologic derangement. Communication with the surgical team is paramount to successful diagnosis and treatment.

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